PRESENTATION

SOFTWARE INDUSTRY TRENDS AND ISSUES

September 3, 1993

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Software Industry Trends And Issues

[This is applicable to all of the industry *except* entertainment software]

- **The packaged software industry is undergoing a true paradigm shift.**
- **The shift now going on is caused by a convergence of:**
  - **Changes occurring among software *customers***
  - **Changes occurring in software *technology***
- **Future changes may greatly impact**
  - **What is "software"**
  - **Who provides "software"**

Customer Changes

- Organizational decentralization
- Empowered business units
- Business units control computer budgets
- Business units *are much* more involved in computer applications decisions
  - Ten years ago IS took the lead in selecting applications packages
  - Recent research finds: Business units across a wide variety of applications and industries are the key decision makers in software product selection.

Customer Changes (Cont.)

- Business units are increasingly bypassing the IS function
  - Customers *are* looking for solutions (This is not just a marketing buzzword)
  - Many IS units have lost credibility
  - More generally, IS is seen as knowing the "old" ways of doing things
- Successful software vendors are avoiding being typed as part of the "old" paradigm

Short Hand for the New Paradigm: Client/Server

- Short definition: "One or more LANs using file servers or sharing data." Not a perfect or technically precise definition, but
  - Accepted by most major vendors
  - Understood by customers

Short Hand for the New Paradigm: Client/Server (Cont.)

- There are two major attractions of client/server to the (business unit) customer:
  - The scale of the technology is consistent with the scale of the typical business unit (see Exhibit 1). This makes client/server
    - -- Conceptually comprehensible
    - -- Potentially controllable by the business unit
  - The apparent costs of client/server technology are at least an order of magnitude lower the older alternatives (see Exhibit 2).

Client/Server Problems

- Technical
- Marketing

Client/Server Problems: Technical

- There are serious difficulties in allocating processing functions and data along the LAN
  - This is a long-standing problem, dating back to "distributed processing" of mid-1980s (see Exhibit 3)
  - Currently, there are no methodological or conceptual underpinnings. Best practice is a combination of experience and artistry. Worst practices = failure.
  - Many competent people/organizations are working on these problems

Client/Server Problems: Technical (Cont.)

- Security still lags behind host-based systems (although improving)
- Customers don't care about these problems; many are oblivious
  - They are happy to buy warmed-over PC products
  - Enormous application replacement rate is planned over next five years: 70% + in many industries
- Software vendors are *very* aware of problems
  - The first vendors to start to solve the problems will pull away from the pack
  - Already, mainframe-based applications software products are starting to die

Client/Server Problems: Marketing

- Who is the real buyer in a specific organization? (units, titles, and criteria are often completely different from customer to customer)
- How does a vendor find the buyer efficiently?
  - Six months too early and the buyer may not know they will be buying soon
  - Six months too late and the decision has been made
  - These "new model" buyers are less likely to have a rigorous selection process
- What are business unit "hot buttons"
- What is being sold? A product or a solution?

"Object Oriented" Technology: Medium Term Answer, Longer Term Problem?

- Definition: Encapsulation of processes (logic) and data. Examples:
  - The *process* for identifying a supplier as a "current supplier"
  - The data that together defines a supplier (e.g., ID number, legal name, "trading as" names, related divisions, address(es), etc.
- Technical advantages of object oriented approach:
  - More rigorous analysis
  - Able to separate forest and trees

"Object Oriented" Technology: Medium Term Answer, Longer Term Problem?

(Cont.)

- Business advantage: Reuse and modification of "objects" . Potentially, will produce
  - Much faster development time and
  - Tailorable software (mix, match, modify objects)

Tailorable Software: Blessing Or Curse To Software Products Companies?

- At some point, software vendors may no longer be selling a "product", but a bag of pieces with instructions.
  - Key value added will be deciding which pieces to use (or change)
  - Who will perform the analysis and make the decision?
    - -- Customer?
    - -- Software product vendor?
    - -- Services vendor ("systems integrator")?
- To compete, software product vendors may have to change their "product" mindset

Exhibit 1

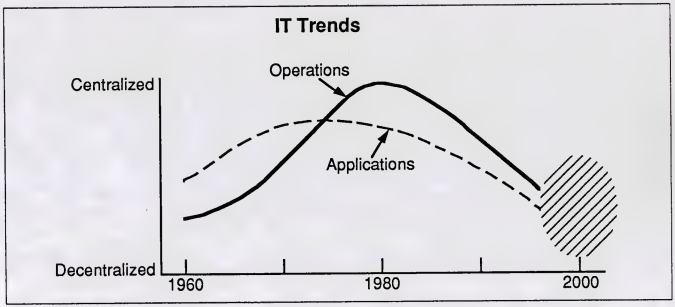

IT Trends
Operations
Centralized
Applications
Decentralized
1960
1980
2000

Exhibit 2

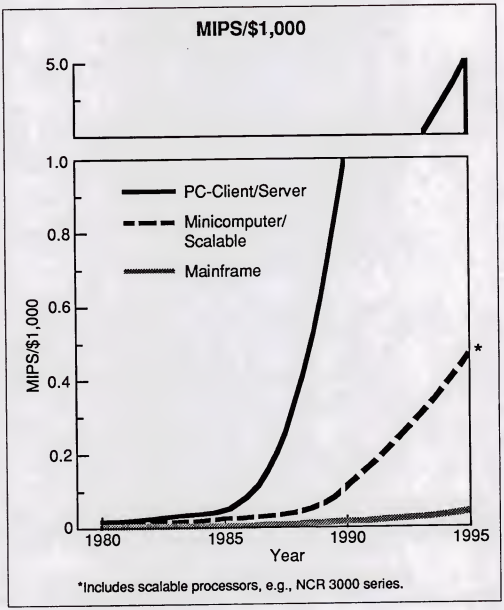
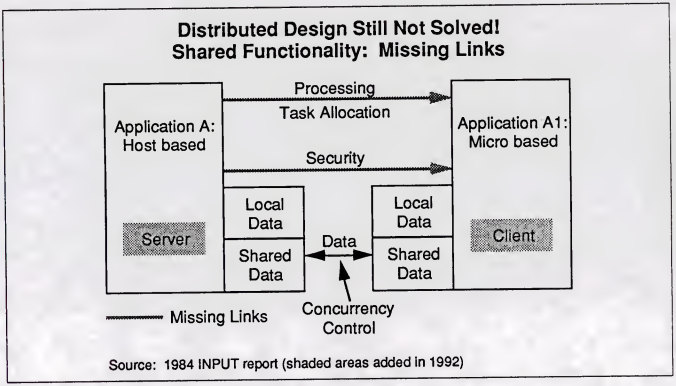

MIPS/$1,000
5.0
1.0
0.8
0.6
0.4
0.2
0
MIPS/$1,000
PC-Client/Server
Minicomputer/
Scalable
Mainframe
*
1980
1985
1990
1995
Year
*Includes scalable processors, e.g., NCR 3000 series.

Exhibit 3



Source: 1984 INPUT report (shaded areas added in 1992)